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Productivity Perspectives

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Productivity Perspectives

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Introduction

The United States continues to show good improvement in manufacturing productivity as compared to its history (if not to all of its foreign competition). The U.S. service industry productivity remains difficult to interpret, but all signs point to stagnation in many service segments. Though the declining dollar should have presented an opportunity for significant expansion in exports, this result has been slow in arriving. The very volatility in exchange rates, foreign investments, and interest rates is unprecedented, and it can all be traced to U.S. inaction with regard to its excessive federal budget deficit. There is some encouraging data on increased R&D spending, lower inflation, stabilized capacity utilization, and inventory reduction. The perpetual threat that the U.S. will someday lose world economic leadership may no longer be a threat...it may already have happened.

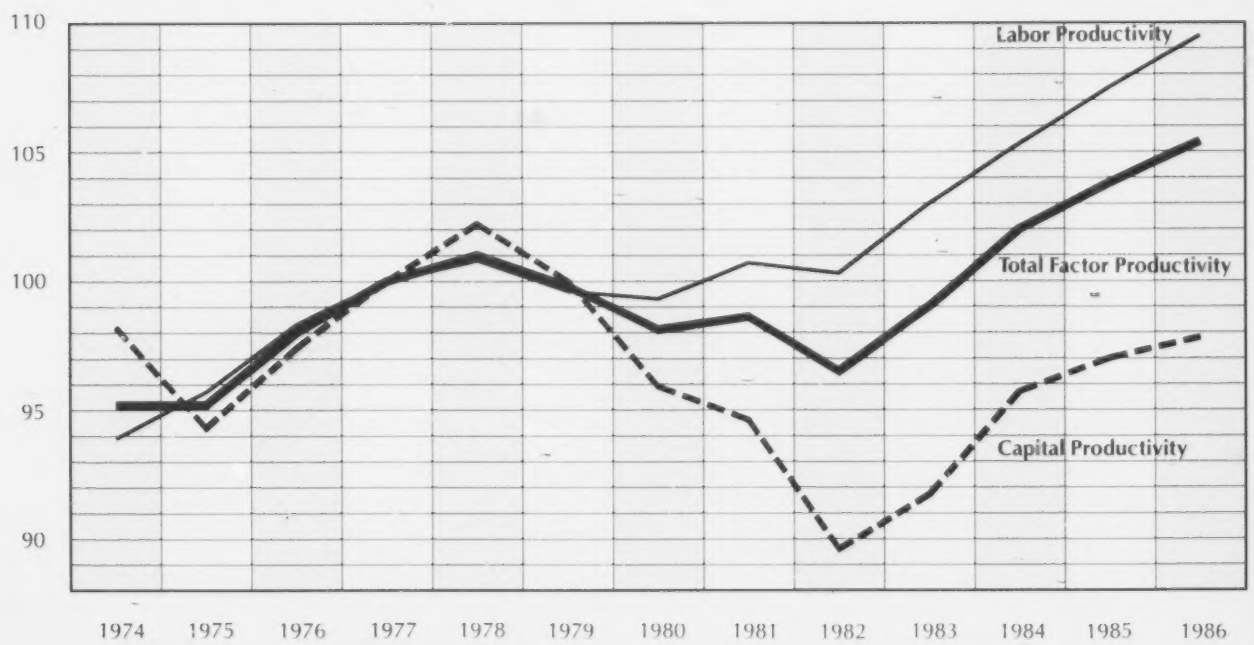
I. U.S. Productivity in the 1980's

Productivity performance in the United States from 1982 through 1986 shows a remarkably steady nearly 2% per year improvement in labor productivity, capital productivity, and the combination of the two—which is called total factor productivity. In the absence of the remainder of **Figure 1**, it would seem that the United States was in a "business as usual" mode. From the longer perspective of 1973 through 1986, the United States performance is not nearly as good. In international productivity trends (see Section III), the U.S performance over this period looks even worse. But there is no question that in the last four years, the United States has regained some of the ground it had lost in the late 1970's and early 1980's.

Labor productivity and the part of capital productivity associated with inventories behave to some extent in a cyclical manner. From a cyclical trough, in which people have been laid off and inventories pared to a minimum, the early appearance of new orders creates a surge in output that is not matched with increases in labor or capital input until much later. Part of the relative success of 1982-86 can be explained by simple reflection of the business cycle. Thus, a peak-to-peak comparison of 1978-86 is a fairer comparison. Here the labor productivity improvement is 1.0% per year and total factor productivity increases at 0.5% per year.

Even more interesting is the breakdown of United States performance into the goods and services industries. Here it is easy to see that the recent partial

Figure 1
Productivity Trends in U.S. Private Businesses, 1974-86



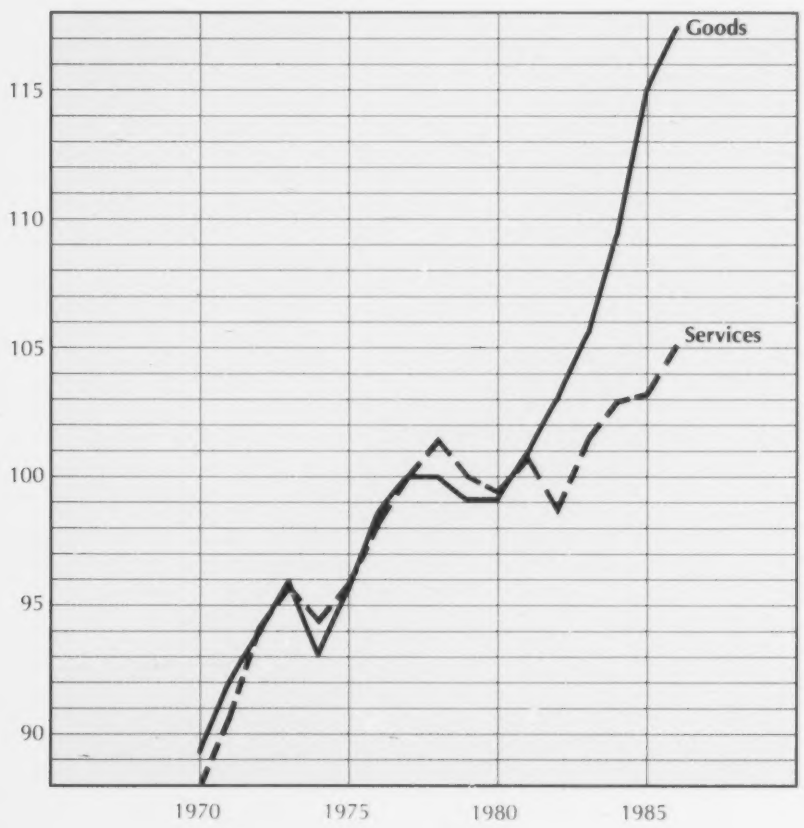
Source: American Productivity Center

success is almost entirely due to a splendid performance by manufacturing, which predominates the goods sector. Apologists for the service sector have argued, with some justification, that it is much more difficult to measure the service sector's productivity performance. But what they must show in order to refute the obvious inference from **Figure 2** is that something has changed in the last few years to make service industries suddenly more difficult to measure. Previous to 1981 the service industries and the goods industries tracked very closely. During that period there was little complaining about how difficult it is to measure the service industries.

It is certainly true that there are "quality problems" in service industry measurement. Quality in a manufacturing context is usually represented by tangible product improvements that are reflected in the price. Service industry quality improvement such as better surgical techniques, more comprehensive insurance policies, or higher levels of bank service are not as likely to be reflected in price adjustments because they are harder to isolate. But these changes have been happening gradually—not overnight. Though they do influence the statistics, the effect is probably too small to invalidate the conclusion that the service industries are the growth laggards in the mid-1980's in the United States.

Figure 2
U.S. Productivity, Goods and Services

2a. Labor Productivity, 1970-86



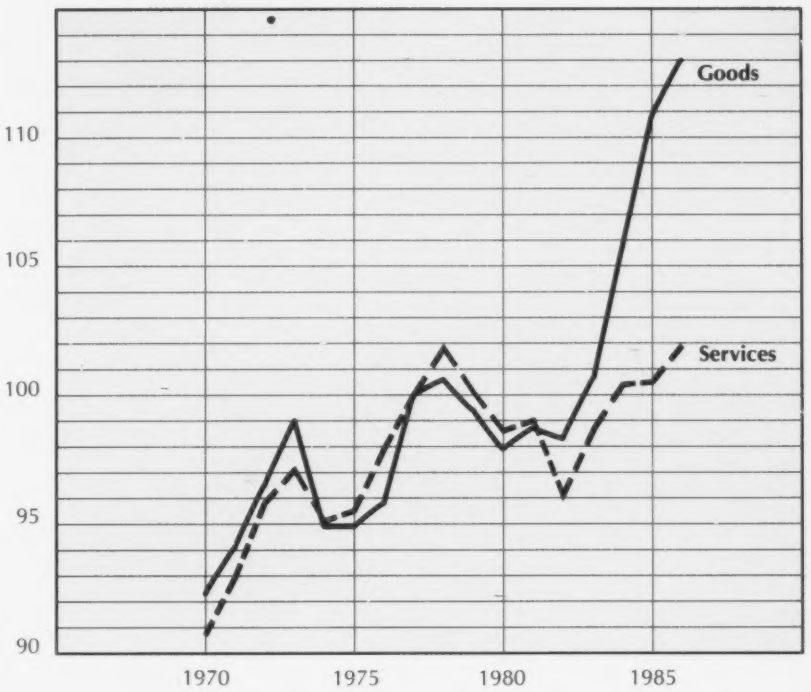
Source: American Productivity Center

Figure 2b is particularly startling. The level of service industry total factor productivity in 1986 is exactly equal to its level in 1978—a period of eight full years in which no progress was made.

This is certainly not a blanket indictment of the service industries, because the relative performances are quite different between components. **Figure 3** shows both in a seven-year perspective and in 1986 alone how different segments of the economy grew in labor and total factor productivity. Only two industry segments performed as well as manufacturing over the 1979-86 period. One of these, farming, is also a member of the goods sector. The only service industry that offers competition is the communications industry with a labor productivity growth of 4.1%, even higher than that of manufacturing. However, the capital productivity results of the communications industry have slipped enough in the recent past to bring total factor productivity improvement below that of manufacturing.

Capital productivity is always difficult to interpret. It is generally acknowledged that capital investment is an engine of labor productivity improvement, and thus strong capital investment is viewed as a positive. There may be short term "start-up" problems associated with capital investment that temporarily depress productivity statistics. But if the investment is done wisely, good long-run productivity improvement can realistically be expected. However, some capital investment is made without adequate consideration of cycles in the marketplace or of increasing competitive threats. Then capital investment is simply

2b. Total Factor Productivity, 1970-86



Source: American Productivity Center

Figure 3
Productivity Performance by Segment

	1979-86		1986	
	Labor Pty.	Total Factor Pty.	Labor Pty.	Total Factor Pty.
Business Economy	1.4	0.8	1.9	1.5
Farming	7.9	6.7	10.5	10.2
Communication	4.1	1.3	4.1	(0.3)
Manufacturing	3.5	2.5	3.7	3.1
Railroads	2.6	0.7	7.6	5.4
Trade	2.0	1.4	3.9	3.1
Mining	1.7	(0.5)	9.0	2.4
Utilities	1.2	0.9	(2.7)	(3.9)
Finance & Insurance	0.2	(1.0)	0.5	(1.3)
Miscellaneous Services	0.1	0.3	0.2	0.1
Real Estate	(0.6)	(2.0)	6.0	4.4
Non-Rail Transportation	(0.8)	(0.9)	1.6	2.1
Construction	(2.1)	(1.9)	(2.4)	(2.0)

Source: American Productivity Center

Figure 4
Best/Worst Labor Productivity Performance, Manufacturing Industries

1979-86

Best		Worst	
Non-Elec. Machinery	11.6	Tobacco	(2.3)
Misc. Manufactures	4.9	Printing	(0.8)
Elec. Machinery	4.6	Furniture	(0.1)
Textiles	3.8	Transport. Equipment	1.2
Instruments	3.6		
Rubber	3.4		

1986

Best		Worst	
Non-Elec. Machinery	15.5	Leather	(10.4)
Petroleum	10.7	Furniture	(3.6)
Primary Metal	9.2	Printing	(2.9)
Chemical	7.6	Misc. Manufactures	(2.7)
Instruments	7.3	Food	(2.0)

Source: American Productivity Center

Figure 5
Best/Worst Total Factor Productivity Performance, Manufacturing Industries

1979-86

Best		Worst	
Non-Elec. Machinery	10.0	Tobacco	(6.1)
Misc. Manufactures	4.1	Petroleum	(2.1)
Elec. Machinery	3.3	Printing	(1.0)
Textile	3.2	Furniture	(0.3)
Rubber	3.2	Primary Metal	0.2

1986

Best		Worst	
Non-Elec. Machinery	13.4	Leather	(11.5)
Petroleum	9.2	Furniture	(3.6)
Primary Metal	7.7	Printing	(3.4)
Chemicals	6.0	Misc. Manufacturers	(3.0)
Instruments	5.4	Tobacco	(2.7)
Textiles	5.3		

Source: American Productivity Center

wasted, and total productivity statistics are appropriately and accurately depressed.

Among the industry segments, the worst performers in the 1979-86 period were nonrail transportation, finance and insurance, real estate, and construction.

In the past it has been popular to explain the poorer performance of the service industries as being a result of special circumstances—for example, deregulation or introduction of new competition in an industry. This may have helped explain poor performance for awhile, but most of these special effects have been around long enough that they are no longer special. The banking industry has been "competing" for several years now; the insurance industry's liability crisis is now well known; the reconfiguration of medicare payments has been accomplished; and airline deregulation is complete—for better or for worse. The blunt fact is that more work is needed in the service industries to improve productivity performance.

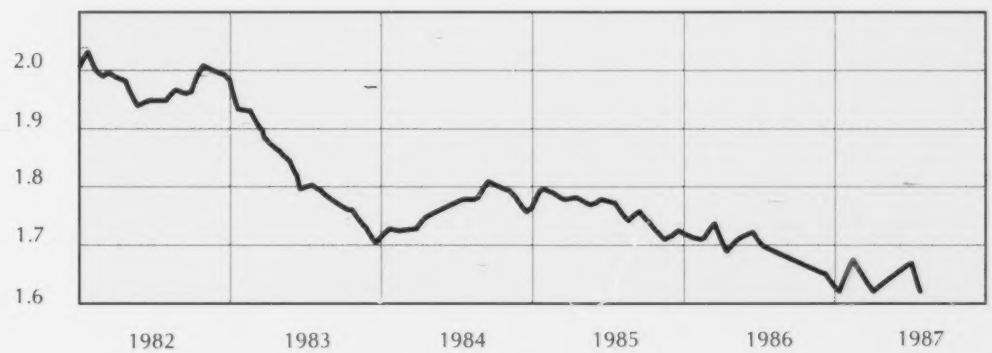
Figures 4 and 5 report the performance of manufacturing industries for 1979-86 and for 1986 alone. Leading the pack by far in both periods is non-electric machinery, an industry able to combine strong increases in output with strong decreases in labor input...the perfect combination. If this doesn't fully fit with the recent profit results of the machinery industry, it should be recalled that price effects are removed in productivity calculations. Thus low margin output is not distinguished from high margin output.

The other good performers in 1986 are instruments, petroleum, chemicals, and textiles, all of which had good output growth. Some had reduced labor input also. Primary metals shows good improvement, but that improvement is due to a strong decrease in labor input.

The poorer performers in manufacturing in 1986, mostly due to weak output growth, are leather, food, furniture, printing, and transport equipment.

In trying to explain the recent overall success of manufacturing, the 1987 edition of *Productivity Perspectives* commented on the lack of progress in reducing the inventory-to-sales ratio in manufacturing. This ratio would be expected to improve since manufacturing innovation tends to follow the Japanese lead in just-in-time manufacturing. One year later, this effect is beginning to show up in the data. In **Figure 6** notice that the 1987 levels of inventory-to-sales ratio have declined approximately 5% from 1986. **Figure 7** shows clearly the seriousness of economic conditions in the United States in the late 1970's and early 1980's and the beginnings of improvement since then. From a business operator's point of view, the relationship between compensation per hour and unit labor cost is set by productivity performance. If productivity improvements largely offset increases in compensation per hour, the unit labor cost increase will be small. If productivity fails to improve, however, then unit labor cost increases will exceed increases in compensation per hour and the business will be severely affected. In the last few years, compensation per hour has received some help from productivity, and unit labor cost increases have all been in the 2% to 3% range, which is historically quite good in the United States.

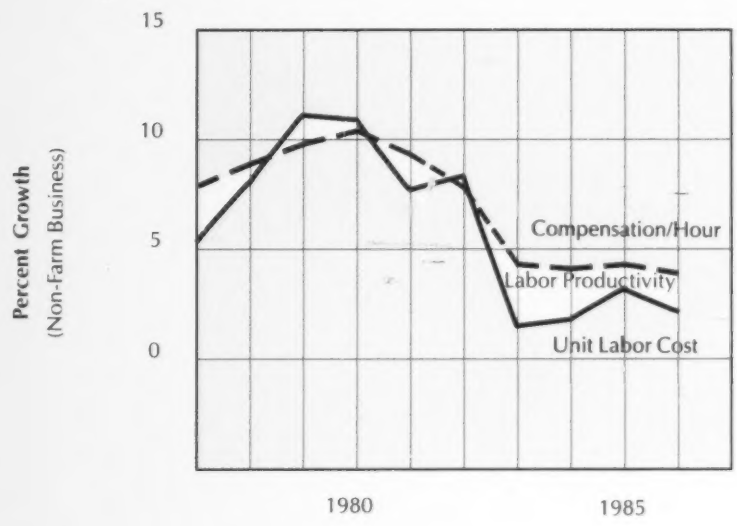
Figure 6
Real Inventory-to-Sales Ratio in Manufacturing



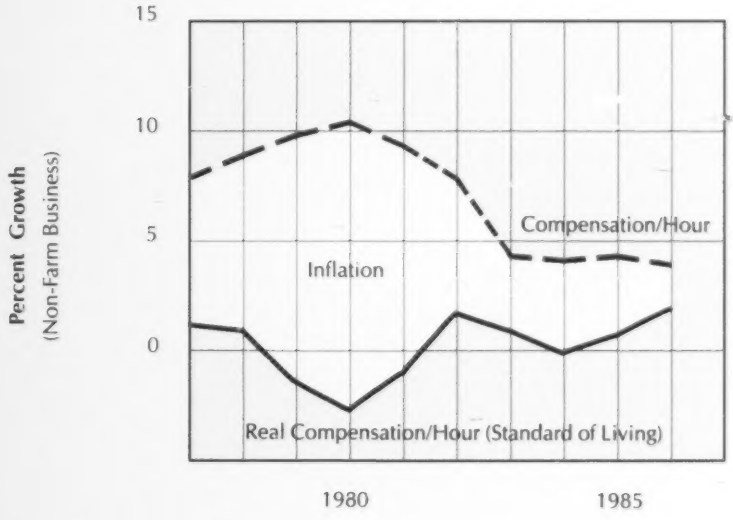
Source: Goldman Sachs

Figure 7
Productivity and Standard of Living

7a. Business View



7b. Worker View



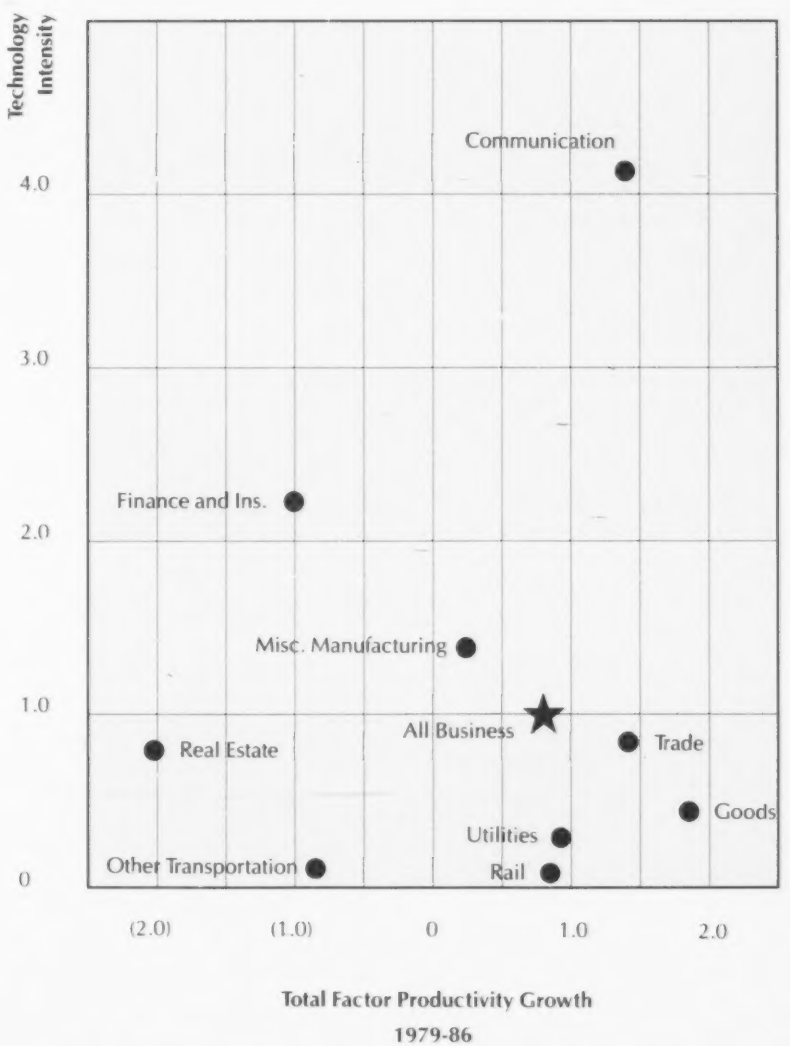
Source: Bureau of Labor Statistics

From the worker's point of view, the relationship between compensation per hour and inflation is key. The worker's wage increase is partially eaten up by inflation. If it is *more* than eaten up by inflation, there is a decline in real compensation per hour, which can be viewed as a decline in standard of living. During 1979-1981 the standard of living actually declined in the United States.

Because of this, current real compensation per hour is still lower than in the early 1970's. Though the positive numbers since 1981 have not been outstanding, they at least have remained positive and the worker has done slightly better than breaking even.

Figure 8 investigates the mystery of poor service industry performance in the face of investment in presumably labor-saving office automation. In this example from Morgan Stanley, an index of "technology intensity" is calculated based on the relative use per industry of information technology. This is compared to total factor productivity growth over the last seven years, with the expectation that the "progressive" industries that have made major investments in information technology should be showing larger productivity improvements. The scatter diagram shows otherwise. There is no discernable relationship between information technology intensity and total productivity growth. The best performer in total factor productivity growth is the goods sector, which shows one of the lowest information technology intensities—though of course it also has plenty of new production technology. The communications industry, once again the exception to the other service industries, shows high technology intensity and one of the better productivity growth records. But the next most intense technology user, finance and insurance, shows one of the worst total factor productivity growth records. Other relatively stronger productivity growers such as trade, utilities, and rail are in the lower reaches of technology intensity. What the project brings into question is whether a single solution, such as information technology, can be relied upon to solve the productivity problems of the nation. Not surprisingly, the answer is no.

Figure 8
Technology Intensity and Total Factor Productivity Growth



Source: Morgan Stanley

II. Interpretation of U.S. Performance

There are several indices and statistics concerning the performance of the U.S. economy that do not deal with productivity directly, but that still play a major role in explaining why productivity has or has not moved. For example, **Figure 9** portrays the capacity utilization situation of the United States. The U.S. is at a relatively high level of capacity utilization and has been for the last three years. Previous to that, there was true over capacity during the 1981-82 recession and some capacity shortages in 1978-79.

Figure 10 shows U.S. research and development as a percent of GNP. This again shows the relative stagnation of the late 1970's and how much progress has been made since then. The U.S. is approaching a "high" in research that has good implications for long-term productivity improvement.

Figure 9
Capacity Utilization, 1979-87

Source: Federal Reserve Board

Figure 10
U.S. Research & Development, 1966-86

Source: National Science Foundation

The U.S. monetary situation is always related to everything else in the economy, and it is hard to pick out specific elements to explain productivity improvement. But **Figure 11** does demonstrate an important moderating effect compared to the recent past. In the fourth quarter of 1985 private and federal borrowing was an astounding 31% of GNP. That has fallen by half in both sectors, bringing the total back to a more normal 15%.

It is probable that too much private borrowing has been for financing "unproductive" leveraged buy-outs. This is not to suggest by any means that the federal deficit is no longer a problem. Heavy federal borrowing is still ahead, and huge foreign-based willingness to fund the U.S. deficit can dissolve as fast as it mushroomed if exchange and interest rates do not behave as expected.

Perhaps the most dramatic story of the last few years has been the persistent decline in the rate of inflation, both in the economy as a whole and in many segments. **Figure 12** shows the significant decline in the consumer price index from its 1979-81 high. The 1986 inflation rate was only 1.9%. This number is a little misleading because, except for the decline in energy costs in 1986, most segments of the economy were inflating in the 3% or 4% range. Still in need of attention is the unusual persistence of inflation in the medical services area. The 7.5% increase in medical costs for 1986 is yet another demonstration of little productivity progress in service industries.

Figure 11
Financing Economic Output (Borrowing as Percent of GNP)

	Private	+	Federal	=	Total
1973-I (recovery peak)	14%		2%		16%
1975-I (recession valley)	7		3		10
1977-IV (recovery peak)	14		3		17
1982-I (recession valley)	7		4		11
1985-IV (recovery in progress)	23		8		31
1987-II (latest)	12		3		15

Source: Goldman Sachs

Figure 12
Specific Inflation (Annual Percent Increase)

	1979-81 Average	1982-84 Average	1985	1986
CPI, Total	11.7	4.5	3.6	1.9
Food	9.0	3.4	2.3	3.2
Housing	13.1	4.7	4.0	2.9
Transport	14.7	3.7	2.6	(3.9)
Medical	10.3	8.8	6.2	7.5

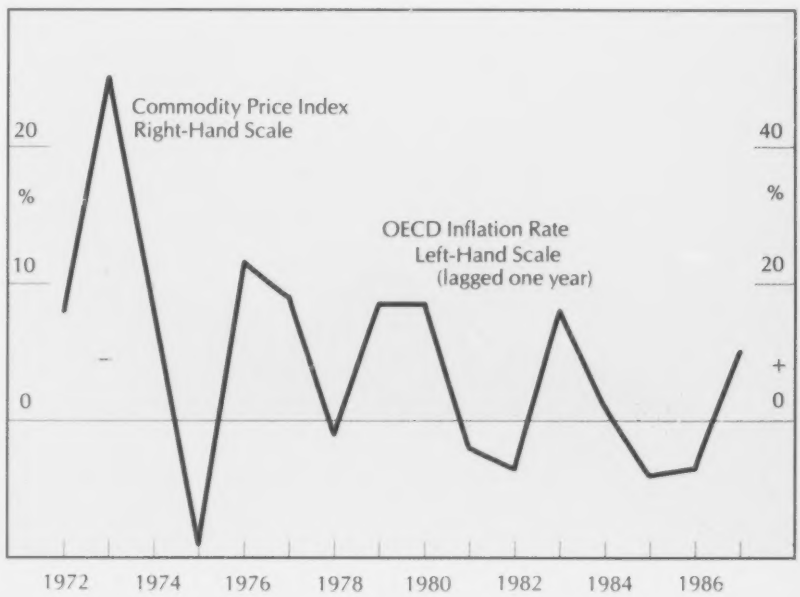
Source: U.S. Department of Labor

More and more commentators are talking about a resurgence of inflation as the dollar continues to weaken. A leading indicator, the long-term commodity price index compiled by *The Economist*, is giving worrisome signals in that direction (see **Figure 13**). This indicator, expressed in SDR's to eliminate currency swings, shows a disturbing upturn in the last year. The index shows a reasonable correlation between its extremes corresponding with a one-year lag to inflation extremes.

A key indicator of important internal shifts in the economy is the forecast job categories that are increasing and decreasing in demand. The Bureau of Labor Statistics has just released a forecast to the year 2000 (see **Figure 14**). Not surprisingly, there will still be a premium on education. The jobs that are not going to increase much if at all are "outdoor" jobs, ordinary operators and clerks, and even precision production people. The areas of strongest growth are technicians and service workers, followed closely by executives and professionals. If the service industries are the categories in which major job growth is expected and if the service industries continue to make the least productivity progress, we will be in a dilemma. Productivity is the relationship of output to input. The U.S. economy wants to see an increase in labor input ("employment"), and everyone agrees this is good. But employment for employment's sake without a corresponding output increase is how productivity declines! If the service industries are simply hiring people but not getting maximum use out of them, we are in the dilemma of increasing employment without increasing productivity.

Figure 13
Commodity Price Indicators

SDR Terms, % Change on Previous Year



Source: *The Economist*

Figure 14
Occupational Growth Forecast 1986-2000

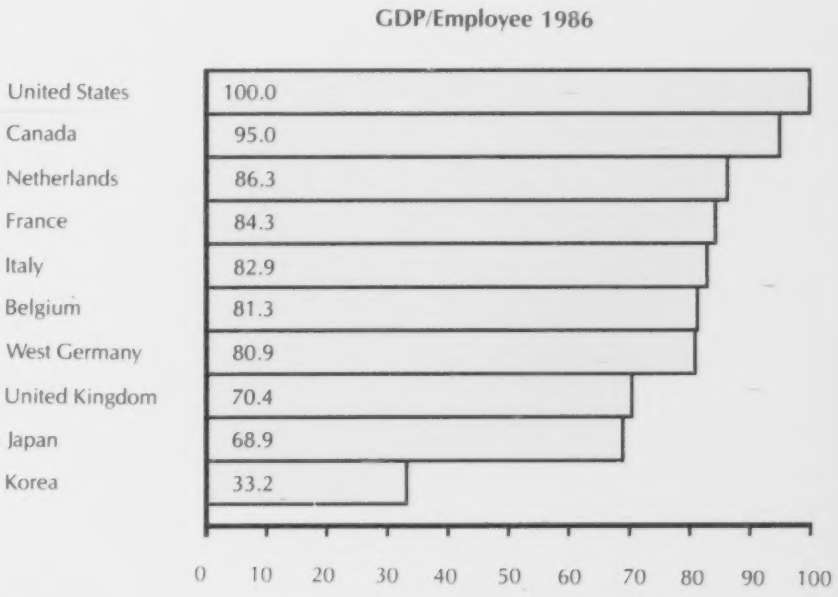
Technicians	38%
Service Workers	33
Sales Workers	30
Executive and Managerial	29
Professional Workers	27
Economy Average	19
Precision Production and Craft	12
Administrative Support and Clerical	11
Operators and Laborers	3
Farming and Forestry	(5)

Source: Bureau of Labor Statistics

III. International Productivity

The United States is still the world's leader in labor productivity *level* (see **Figure 15**). The most comprehensive calculation of productivity is done by the Bureau of Labor Statistics (BLS) using gross domestic product per employee and making comparisons on a purchasing-power-parity basis. The BLS attempts to analyze national performance based on a basket of purchased commodities that is more stable and sensibly related to business activity than would be a currency exchange comparison. On this basis the United States, arbitrarily given a rating of 100, substantially leads all the major industrial countries in labor productivity. Next is Canada at 95, followed by a drop down to the mid-80's for the Netherlands, France, and Italy. Japan rates around 70 along with the United Kingdom. Korea, a growing country, is at 33% of the United States level. The 1985 comparison published last year showed these other nations to be a great deal closer to the United States, but a substantial U.S. government refiguring has occurred that might be interpreted as giving the U.S. several more years of breathing room. Breathing room bought by pencil calculations can just as easily be taken away by pencil recalculations, so this should not be a source of complacency.

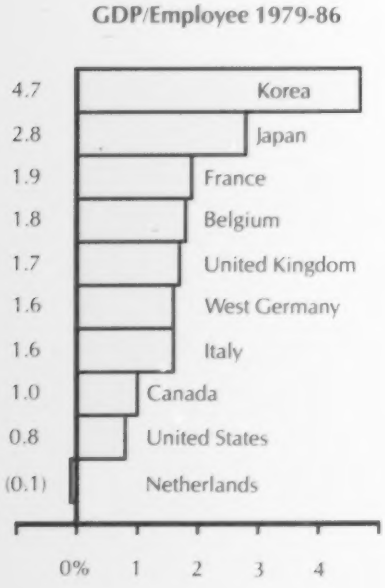
Figure 15
International Productivity Levels



Source: Bureau of Labor Statistics (Purchasing-Power-Parity Basis)

Figure 16 shows the growth rate in the GNP per employee in these countries. If there is complacency from the last chart, it should evaporate here. Over the 1979-86 period the U.S. remains near the bottom in productivity growth rate. The U.S. rate of 0.8% per year is eclipsed by that of Korea at 4.7% and Japan at 2.8%, as expected, but most European countries' growth rates are also a full percentage point better than that of the United States.

Figure 16
International Productivity Growth



Source: Bureau of Labor Statistics

Figure 17
U.S. and U.S.S.R. Compared

	Labor Productivity Growth		Total Factor Productivity Growth	
	U.S.	U.S.S.R.	U.S.	U.S.S.R.
1960-65	3.9	3.1	3.4	(0.1)
1965-70	1.8	2.9	1.1	0.6
1970-75	1.6	1.3	0.7	(1.4)
1975-80	0.7	1.1	0.6	(1.4)
1980-85	1.4	1.3	0.9	(1.2)
Average 1960-85	1.9	1.9	1.3	(0.7)

Source: American Productivity Center (U.S.); Central Intelligence Agency (U.S.S.R)

Figure 18
International Manufacturing Labor Productivity

	1973-79 (Average Annual Percentage Growth)	1979-86 (Average Annual Percentage Growth)
Japan	5.5	5.6
France	5.0	3.6
West Germany	4.3	2.8
Italy	3.3	3.3
Sweden	2.6	3.0
Norway	2.1	1.9
Canada	2.1	1.4
United States	1.4	3.1
United Kingdom	1.1	4.4

Source: Bureau of Labor Statistics

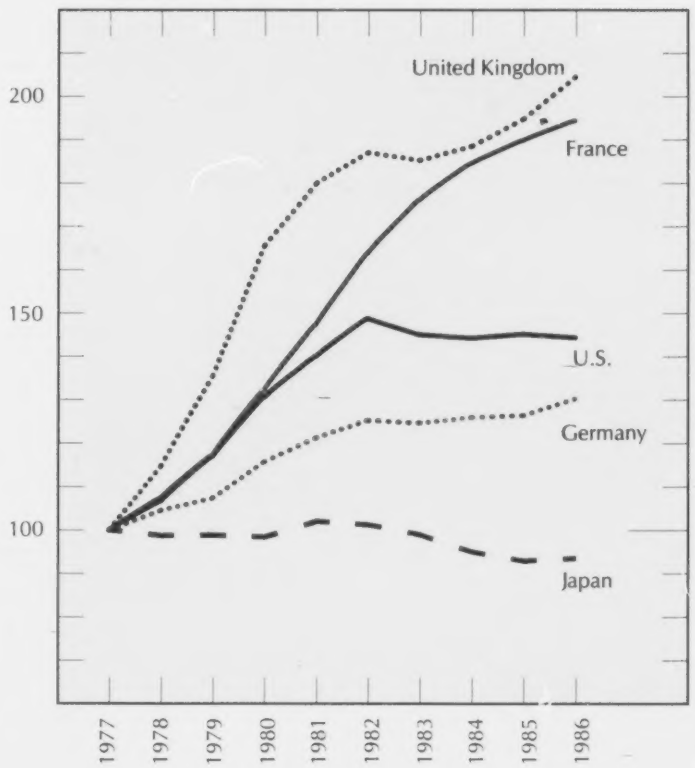
Figure 17 brings in the missing country, the Soviet Union. The Central Intelligence Agency has undertaken approximate measurement of the U.S.S.R., and comparison is made with the United States, as represented by the American Productivity Center's data. Note that in labor productivity the published rates and the timings are very similar between the U.S. and the U.S.S.R., but in total factor growth it is clear that the Soviet Union does not make as good use of its capital as does the United States.

In the manufacturing sector, the United States' improvement in the last few years is clearly depicted in **Figure 18**. The United States was near the bottom of the pack in growth rates in 1973-79 at 1.4%. In the period 1979-86 the U.S. is at least in the middle at 3.1%. Japan still has a 5.6% growth rate and European countries tend to have 3% or 4% rates, but the U.S. is within reach. The relative increase of the United Kingdom and decrease of West Germany are also startling.

Figure 19 shows the increase in unit labor costs in manufacturing in the various major countries on a national currency basis. What is encouraging about this graph is that the United States has avoided an increase for the last four years (as has Japan), whereas Germany, France, and the United Kingdom have all increased.

Figure 20 measures productivity in a much looser way but allows comparison among all the countries in the world instead of just the well-measured advanced industrial countries. GNP per capita is not a good productivity measure unless nothing else is available, which is the case for most countries. A good number of the "capitas" in underdeveloped countries are completely outside the economic sector of that country and shouldn't be counted in economic comparisons. GNP per capita is more of a social indicator than an economic indicator, but it does give some rough idea of the level of economic wealth. It is interesting that in 1985 the U.S. has (excluding the United Arab Emirates) regained the lead in gross national product per capita as translated to a dollar base. Not surprisingly, most of the leading countries are located in Europe, but rapid improvements are coming from Pacific Basin countries. The lower part of the top fifty consists mostly of Latin American and Eastern European countries, many of which have occasional good growth rates but tend not to grow reliably from year to year. In order to be one of the top fifty reporting countries, a level of $1,300 per capita was required, which is less than one tenth of the level of the U.S. There were more than fifty countries that did not even reach this level!

Figure 19
Increase in Unit Labor Costs in Manufacturing (National Currency Basis)



Source: U.S. Department of Labor; Bureau of Labor Statistics

Figure 20
Level of GNP per Capita for the Top 50 Reporting Countries, 1985

$000/Capita	Western Hemisphere	Europe	Pacific Basin	Africa & Near East
16.8 +				United Arab Emirates
16.7	United States			
9.5 - 16.6	Canada	Switzerland Norway Sweden Denmark West Germany Finland France	Australia Japan	Kuwait
6.5 - 9.4		Netherlands Austria Belgium United Kingdom Italy	New Zealand Singapore	Saudi Arabia Libya Oman
2.4 - 6.4	Trinidad Venezuela	Ireland Spain Greece	Hong Kong	Israel Algeria
1.3 - 2.3	Argentina Uruguay Panama Brazil Chile Colombia Costa Rica Guatemala Mexico	Yugoslavia Hungary Poland Portugal	Korea Malaysia	South Africa Syria Jordan Tunisia

Source: World Bank

Great changes have occurred in the last two years in exchange rates, which has been one of the most disruptive factors in interpreting economic performance. **Figure 21** shows a possibly temporary bottoming out of the two-year decline of the dollar; the dollar has fallen nearly 40% in value from its high in early 1985 compared to its trading partners. **Figure 22** shows the dollar/yen exchange rate, which has fallen further from last year. The U.S. should certainly expect its manufacturing exports to increase significantly. It should also expect the Japanese to accelerate locating manufacturing operations for goods destined for the U.S. within the United States rather in Japan.

Japan, hit with substantial strengthening of the yen, has been forced to locate its investment initiatives abroad. From a $10 billion to $30 billion dollar net external asset balance in the late 1970's the Japanese have invested abroad to the point of reaching approximately $200 billion in external assets in 1986. This partially replaces the even larger retreat of the U.S. in net external assets. The weakening of the U.S. dollar has made the United States into the world's largest debtor very quickly as shown in **Figure 23**.

Figure 24 imperfectly calculates world interest rates as of late 1987 using the last 12 month inflation rate as a proxy for the uncalculable "future expected inflation." On this basis, United States real long-term interest rates are no longer above those of the rest of the world. In fact, they are shown to be below those of the other key countries except Japan.

Figure 21
U.S. Dollar Trade-Weighted Exchange Rate

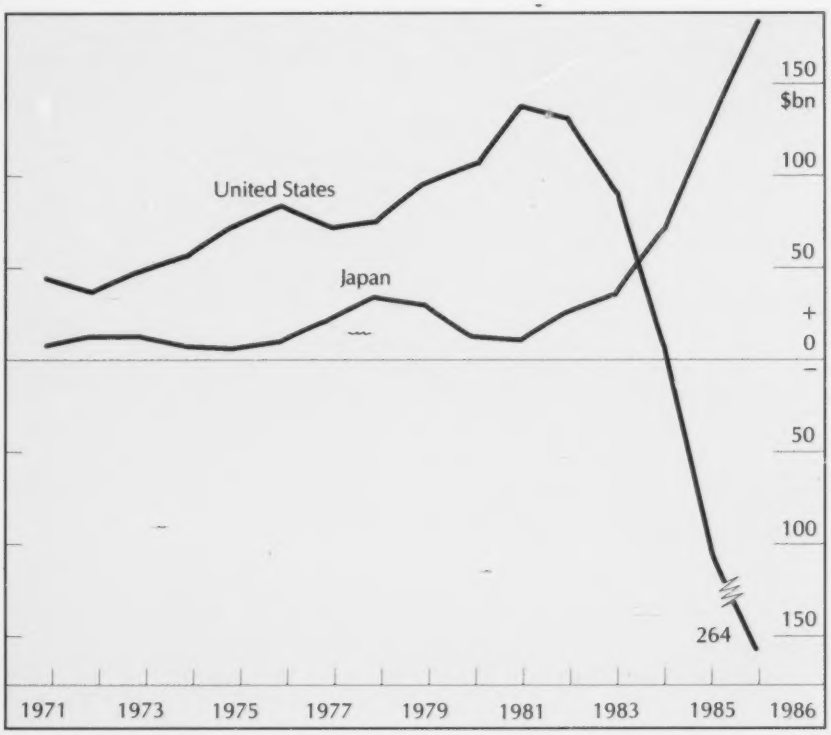
1973 = 100

Source: U.S. Department of Commerce

Figure 22
U.U.S.-Japanese Currency Exchange Rate

Source: Federal Reserve

Figure 23
Net External Assets, U.S. and Japan



Source: *The Economist*

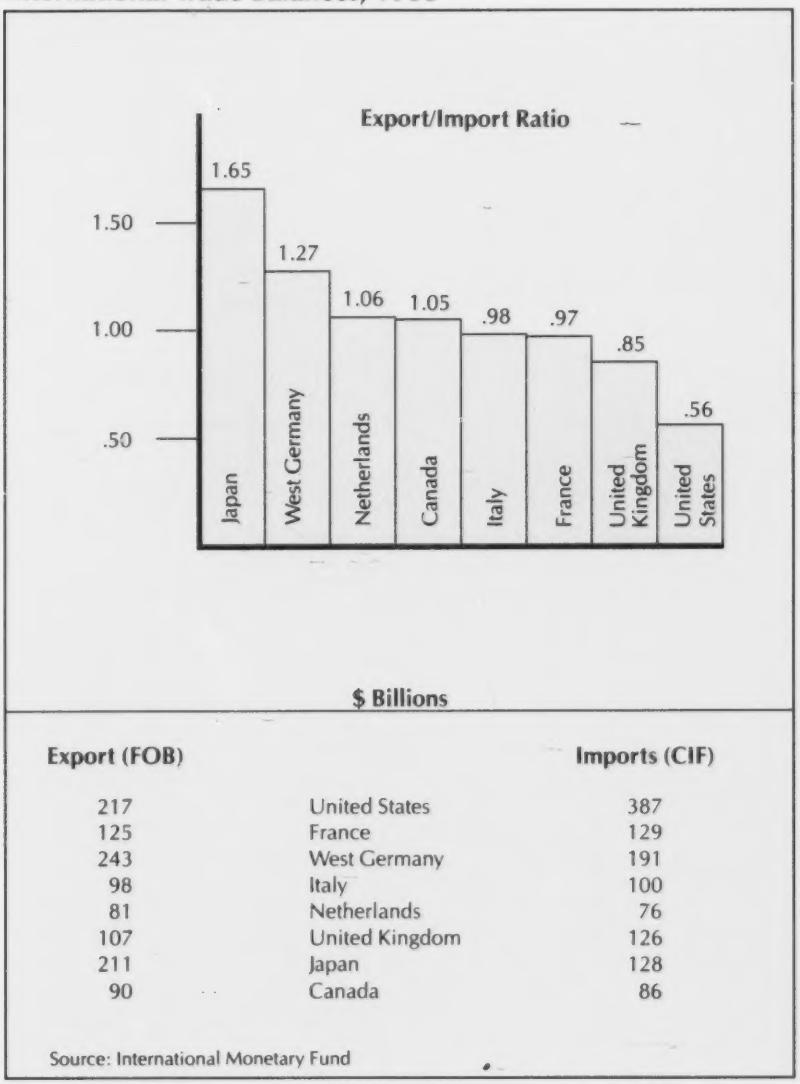
Figure 24
Money Markets, October 1987

	Nominal Interest Rates			Real Interest Rates	
	3-Month Money Market	Long Term Government Bonds	Last 12 Months Inflation	Short Term	Long Term
United States	7.8	9.7	4.3	3.5	5.4
Canada	9.5	11.0	4.5	5.0	6.5
France	8.1	10.7	3.5	4.6	7.2
Italy	12.6	11.2	5.0	7.6	6.2
West Germany	4.6	6.6	0.5	4.1	6.1
United Kingdom	10.1	10.1	4.4	5.7	5.7
Japan	3.9	5.6	0.8	3.1	4.8

Source: *The Economist*

The U.S. international trade balance in 1986 compared to the balances of other key countries is shown in **Figure 25**. The United States is close to being in the unenviable position of having twice as many imports as exports. The U.S. ratio of exports to imports is down to .56. The general practice in the world is to stay within a .90 to 1.10 band with some notable export countries above that and some notable "importers" in the .80 range. But .56 is ridiculous.

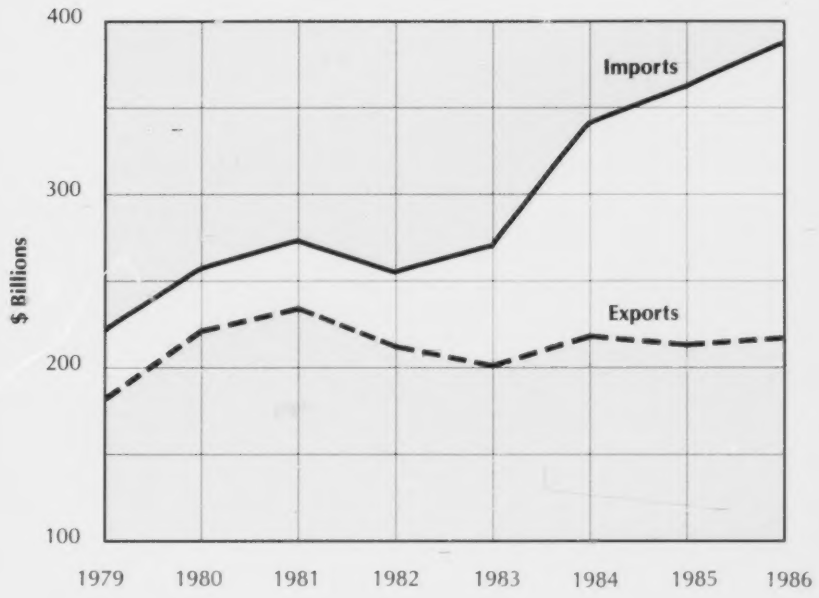
Figure 25
International Trade Balances, 1986



Export (FOB)		Imports (CIF)
217	United States	387
125	France	129
243	West Germany	191
98	Italy	100
81	Netherlands	76
107	United Kingdom	126
211	Japan	128
90	Canada	86

Source: International Monetary Fund

Figure 26
Deterioration of U.S. Trade Balance



Source: International Monetary Fund

Figure 27
Evolution in U.S. Trade Balance Composition

	$ Billion	
	1982	**1986**
Fuel	(55)	(32)
Automotive	(16)	(53)
Clothing/Textile	(8)	(23)
Steel	(8)	(8)
Aircraft	9	11
Chemical	10	7
Machinery	19	(30)
Food/Agriculture	28	(3)
All Other	(26)	(50)
Total	(47)	(181)

Source: U.S. Department of Commerce

Figure 26 shows the ever-widening trade balance. With the decline in the exchange value of the dollar it would certainly be expected that exports would have substantially increased, but so far they are only holding their own. And U.S. imports, though still more expensive, are continuing to increase. The nature of the trade balance has changed over the last few years. **Figure 27** shows that whereas the whole negative trade balance in 1982 could be explained by fuel, now virtually every U.S. industry is in negative balance. The largest single piece of negative trade balance is held by the automotive industry. Fuel continues to remain important, but there are also negative balances in clothing and textile, machinery, and (shockingly) even in food and agriculture. The major positives, small as they are, are in aircraft and chemicals. Of course there are some subsets of machinery—computers for example—in which the U.S. continues to do well.

Figure 28 shows the different patterns of U.S. exports to Japan and U.S. imports from Japan. This would normally be thought of as a "colonial" situation in which a small colony sends food and crude supplies to the mother country, and the mother country sends back capital goods and finished products. In this case the "colony" is the U.S and the "mother country" is Japan.

The latest statistics on real gross national product growth, consumer price inflation, and unemployment are shown in **Figure 29** for both the long-term and the recent past. The last 12 months U.S. GNP growth is toward the bottom of the pack. The last twelve months inflation has improved for almost everyone and the United States' performance is comparable to that of the others. The U.S. unemployment rate, except in comparison to countries in special situations such as Switzerland and Japan, shows up very well at only 6%. Some of these numbers can be combined in what economists call a "misery index" (see **Figure 30**). The misery index is conventionally calculated as the inflation rate plus twice the unemployment rate. In this case, because of the successful attack on both problems in the United States, the U.S. misery index is back to the level of 1970 at only 16. This is substantially better than the misery index for France, the United Kingdom, and Italy, who were all below or at the level of the United States back in 1970. Japan's misery index, which was already low, has gotten lower; West Germany's index, which was lowest of all, has gotten substantably higher. The West German economy, with relatively high unemployment and relatively low GNP growth, is now properly being singled out by U.S. policy makers as a problem for world growth.

Figure 28
U.S.-Japan Trade (January-June 1987)

	$ Billions	
	U.S. Exports to Japan	**U.S. Imports from Japan**
Food and Feed	2.5	—
Industrial Supplies	4.6	—
Intermediate Goods	—	3.6
Capital Goods	3.2	13.7
Consumer Goods	1.2	6.2
Automotive Products	—	16.5
Other	1.1	0.6
	12.6	40.6

Source: Japan Economic Institute

Figure 29
World Economic Factors

	Real GNP Growth		**Consumer Price Inflation**		**Unemployment**
	Average 1980-85	**Last 12 Months***	**Average 1977-86**	**Last 12 Months***	**Latest***
Australia	3.1	4.9	8.6	9.3	8.1
Belgium	0.4	N/A	5.8	1.7	12.6
Canada	2.3	3.1	7.7	4.5	8.8
France	1.2	1.6	9.3	3.5	11.0
Italy	0.8	2.2	13.6	5.0	14.2
Japan	3.9	2.8	3.3	0.8	2.8
Netherlands	0.5	3.0	4.0	0.2	14.0
Spain	1.7	N/A	13.4	4.6	20.5
Sweden	1.7	4.5	8.9	4.9	2.4
Switzerland	1.2	2.5	3.4	1.9	0.7
United Kingdom	1.7	3.7	8.7	4.4	10.2
United States	2.3	2.4	6.8	4.3	6.0
West Germany	1.2	0.8	3.5	0.5	8.9

* Last 12 months for GNP is usually July 86 - June 87
Last 12 months for inflation is usually September 86 - August 87
Latest for unemployment is usually August 87

Source: *The Economist*, Central Intelligence Agency, Organization for Economic Cooperation and Development

Figure 30
Misery/Index *

	1970	1975	1980	Current
U.S.	16	25	28	16
Japan	10	20	13	6
West Germany	5	14	12	18
France	10	20	25	25
United Kingdom	12	30	30	25
Italy	16	29	36	33

* Inflation rate + twice unemployment rate

Source: *The Economist*

Figure 31
International Savings and Investment

	1985 Savings as Percent of Disposable Personal Income	1985 Gross Domestic Savings as Percent of GDP
United States	4.6	16
France	12.4	19
West Germany	12.9	24
Italy	21.9*	18
Netherlands	N/A	25
United Kingdom	11.7	18
Japan	17.2	32
Canada	12.1	23

* 1984 data

Source: World Bank; Central Intelligence Agency

Savings and investment statistics are shown in **Figure 31**. The United States is at the bottom of the group in savings as a percent of disposable income. In fact, within shorter time periods since 1985 the United States has even reached a new low below 3%. Japan continues to lead in gross domestic savings as a percent of GDP. There are structural differences between the countries that make this comparison not a clean one, but even when proper adjustments are made, the United States is well below what should be possible.

Many public speakers are using recently tabulated statistics on lawyers per population as a basis for joking about the problems of the United States. If it were only a joke! **Figure 32** shows the lawyer count per hundred thousand population for five countries in the world. The United States has more than twenty times the lawyer intensity of Japan and at least twice the number of everybody else. This is perhaps not as startling as the judge population. If the United States had a great number of lawyers and also a great number of judges, at least cases would get handled with reasonable dispatch. But the lawyers per judge ratio in the United States, 23, compares to a single digit ratio in all the other countries. Many industries have identified a variation on this as an indirect but very important effect on their long-term planning and productivity results.

Emphasis has been on labor and capital productivity but it is worth noting that energy productivity can also be calculated. **Figure 33** shows the real GNP per unit of energy in 1975 and 1984 in several countries. This is partly a measure of the relative geography and energy reserves of the different countries, so the level comparisons are hard to interpret. But the trend does demonstrate the degree of urgency that energy problems have generated in each country. The United States improvement rate over this period is one of the best, except of course for that of Japan. It is interesting that the three negatives on the chart are the iron curtain countries.

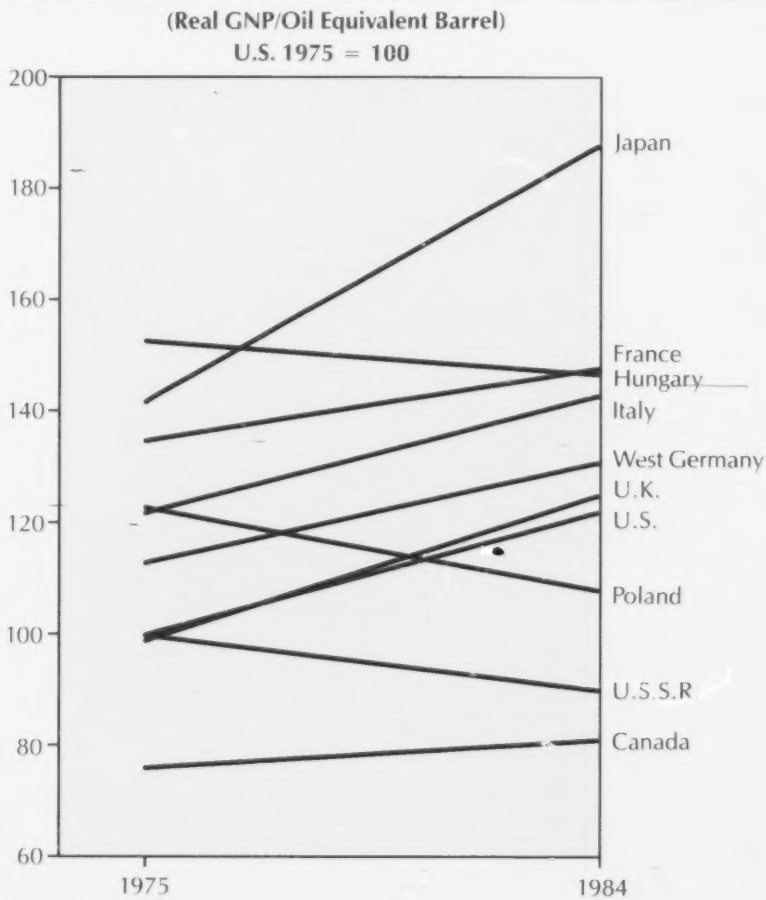
United States manufacturing productivity performance in the world is improving, but this improvement should not have been particularly difficult with the recent softening in the dollar's exchange value. Sustained improvement is not likely until the U.S. effectively solves internal problems associated with lack of service industry productivity progress and the still-huge federal budget deficit.

Figure 32
Comparative Legal Systems

	Lawyers per 100,000 Population	Judges per 100,000 Population	Lawyers per Judge
United States	279	12	23
Great Britain	114	50	2
West Germany	77	28	3
France	29	8	4
Japan	11	2	5

Source: *The Economist*

Figure 33
Energy Productivity



Source: Central Intelligence Agency

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